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Franzen

(54) HIGH-RESOLUTION ION MOBILITY SPECTROMETRY

(76) Inventor: **Jochen Franzen**, Bremen (DE)

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(57) **ABSTRACT**

A supersonic gas jet having gas molecules with substantially equal velocities is formed by directing the gas through a Laval nozzle into an evacuated chamber. A field barrier having a substantially constant height across a cross-section of the supersonic gas jet is formed by respectively applying potentials U_2, U_3 and U_4 to an arrangement of three apertured diaphragms R_2, R_3 and R_4, which are respectively separated by distances d_2 and d_3, where $(U_4-U_3)/(U_3-U_2)=d_3/d_2$. The ions in the supersonic gas jet are directed against the field barrier, where ions with a mobility below a mobility threshold are pushed over the field barrier, and where ions with a mobility higher than the mobility threshold are held back by the field barrier.